

**CLAIMS:**

1. A multi-catalyst injection system comprising:
  - a vessel suitable for storing fluid cracking catalyst;
  - a separator disposed in the vessel and defining at least two compartments within the vessel;
  - a plenum defined in the vessel and fluidly coupled to each compartment; and
  - a plurality of dispense mechanisms, a respective one of each dispense mechanisms coupled to a respective compartment.
2. The system of claim 1, wherein the separator extends from a bottom of the vessel to an elevation short of a top of the vessel.
3. The system of claim 2, wherein the separator is substantially planar.
4. The system of claim 2, wherein the separator comprises:
  - two or more flanges extending radially outward from a common joint, the two or more flanges forming an angle therebetween that is less than approximately 180 degrees.
5. The system of claim 4, wherein at least one of the two or more flanges is rotatable around the common joint.
6. The system of claim 1, wherein the at least two of the compartments have different volumes.
7. The system of claim 1, wherein the at least two compartments are substantially equal in volume.

8. The system of claim 1, wherein at least one of the compartments has an adjustable volume.
9. The system of claim 1 further comprising:
  - a plurality of catalyst fill ports disposed through a top of the vessel, wherein the plenum is positioned proximate the fill ports.
10. A fluid catalytic cracking system comprising:
  - a fluid catalytic cracking unit; and
  - a catalyst injection vessel coupled to the fluid catalytic cracking unit having a plurality of catalyst storage chambers.
11. The system of claim 10 further comprising:
  - a separator coupled to a bottom of the vessel and extending to an elevation short of a top of the vessel.
12. The system of claim 11, wherein the separator comprises:
  - two or more flanges extending radially outward from a common joint, at least two of the flanges forming a dog-leg orientation.
13. The system of claim 11, wherein the separator comprises:
  - two or more flanges extending radially outward from a common joint, at least two of the flanges rotatable around the common joint.
14. The system of claim 10, wherein the at least two of the compartments have different volumes.
15. The system of claim 10, wherein the at least two compartments are substantially equal in volume.

16. The system of claim 10 further comprising:
  - a plurality of catalyst fill ports disposed through a top of the vessel; and
  - a plenum is positioned within the vessel proximate the fill ports and fluidly coupled to the compartments.
17. The system of claim 10 further comprising:
  - a pressurizing system coupled to the vessel adapted to control the pressure within the vessel in a range of about 5 to about 80 pounds per square inch (about 0.35 to about 5.6 kg/cm<sup>2</sup>).
18. The system of claim 10 further comprising:
  - a respective metering device coupled to each compartment.
19. The system of claim 10 further comprising:
  - a separator coupled between a bottom and a top of the vessel; and
  - at least one hole extending through the separator proximate the top of the vessel.
20. The system of claim 10, wherein at least one of the compartments has an adjustable volume.
21. A method for injecting catalyst into a fluid catalytic cracking unit, comprising:
  - storing catalyst in a first compartment of a vessel;
  - storing catalyst in a second compartment of the vessel; and
  - dispensing catalyst from the first compartment into a fluid catalytic cracking unit.
22. The method of claim 21 further comprising:
  - adjusting a volume of at least one of the compartments.

23. The method of claim 21 further comprising:  
dispensing catalyst from the second compartment into the fluid catalytic cracking unit.
24. The method of claim 23, wherein the step of dispensing catalyst from the first and second compartments occurs simultaneously.
25. The method of claim 23, wherein the step of dispensing catalyst from the first and second compartments occurs sequentially.
26. The method of claim 22, wherein the catalyst stored the first and second compartments are chemically different.